



Cambridge IGCSE™

COMBINED SCIENCE

0653/52

Paper 5 Practical Test

May/June 2025

CONFIDENTIAL INSTRUCTIONS

This document gives details of how to prepare for and administer the practical exam.

The information in this document and the identity of any materials supplied by Cambridge International are confidential and must NOT reach candidates either directly or indirectly.

The supervisor must complete the report at the end of this document and return it with the scripts.

INSTRUCTIONS

- If you have any queries regarding these confidential instructions, contact Cambridge International stating the centre number, the syllabus and component number and the nature of the query.
email info@cambridgeinternational.org
phone +44 1223 553554

This document has **8** pages.

General information about practical exams

Centres must follow the guidance on science practical exams given in the *Cambridge Handbook*.

Safety

Supervisors must follow national and local regulations relating to safety and first aid.

Only those procedures described in the question paper should be attempted.

Supervisors must inform candidates that materials and apparatus used in the exam should be treated with caution. Suitable eye protection should be used where necessary.

The following hazard codes are used in these confidential instructions, where relevant:

C	corrosive	MH	moderate hazard
HH	health hazard	T	acutely toxic
F	flammable	O	oxidising
N	hazardous to the aquatic environment		

Hazard data sheets relating to substances used in this exam should be available from your chemical supplier.

Before the exam

- The packets containing the question papers must **not** be opened before the exam.
- It is assumed that standard school laboratory facilities, as indicated in the *Guide to Planning Practical Science*, will be available.
- Spare materials and apparatus for the tasks set must be available for candidates, if required.

During the exam

- It must be made clear to candidates at the start of the exam that they may request spare materials and apparatus for the tasks set.
- Where specified, the supervisor **must** perform the experiments and record the results as instructed. This must be done **out of sight** of the candidates, using the same materials and apparatus as the candidates.
- Any assistance provided to candidates must be recorded in the supervisor's report.
- If any materials or apparatus need to be replaced, for example, in the event of breakage or loss, this must be recorded in the supervisor's report.

After the exam

- The supervisor must complete a report for each practical session held and each laboratory used.
- Each packet of scripts returned to Cambridge International must contain the following items:
 - the scripts of the candidates specified on the bar code label provided
 - the supervisor's results relevant to these candidates
 - the supervisor's reports relevant to these candidates
 - seating plans for each practical session, referring to each candidate by candidate number
 - the attendance register.

Specific information for this practical exam

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 1

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	carrot slice (see note 1.1)	1
	white tile	1
	potato cube (see note 1.2)	1
	iodine solution in a container, labelled iodine solution (see note 1.3)	at least 10 cm ³
	dropping pipette	1

Notes

- 1.1** The carrot slice should be circular, approximately 1 cm thick, and from an unpeeled carrot. It should be presented to candidates on the white tile.
- 1.2** The potato cube should be freshly cut, without skin, and should be approximately 1 cm³. The potato cube should be presented to candidates in a shallow dish.
- 1.3** Commercially available iodine solution for food testing is suitable.

Action at changeover

Replace the carrot and potato pieces.

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 2

Each candidate will require the following materials and apparatus. Labels do **not** need to include concentrations.

hazard	materials and apparatus	quantity per candidate
	0.40 mol dm ⁻³ copper(II) chloride solution, labelled copper(II) chloride	40 cm ³
	aluminium foil (see note 2.1), labelled aluminium	0.5 g
	stirring thermometer, -10 °C to +110 °C, with 1 °C graduations (see note 2.3)	1
	plastic cup (see note 2.2)	1
	250 cm ³ glass beaker	1
	25 cm ³ measuring cylinder	1
	access to paper towels	

Notes

- 2.1** The aluminium foil can be kitchen foil. It must be provided in small pieces no bigger than 1 cm² in size. The pieces do **not** need to be of uniform shape and size.
- 2.2** The plastic cup must fit into the glass beaker.
- 2.3** The thermometer must be able to be used as a stirring rod. If a suitable thermometer is not available, the candidates will need to be provided with a glass stirring rod.
- 2.4** The candidates will generate solid residue that should **not** be disposed of down a sink. The supervisor should remove the reaction residue once the candidates have finished Question 2.

Action at changeover

Replace all the chemicals and apparatus. Remove all the reaction mixture residues.

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 3

Each candidate will require the following materials and apparatus.

hazard	materials and apparatus	quantity per candidate
	d.c. power supply of approximately 1.5 V to 2 V (see note 3.1)	1
	voltmeter capable of measuring up to 2.0 V with a minimum resolution of 0.1 V	1
	two 15Ω resistors each in a component holder with terminals (see note 3.2)	1
	switch	1
	connecting leads (see note 3.3)	6

Notes

- 3.1** If candidates are supplied with a power supply of variable voltage output, the voltage should be set by the supervisor and fixed, e.g. taped. If dry cells are used as the power source, check that they remain adequately charged during the examination. Spare cells should be available.
- 3.2** Candidates should **not** be told that the resistors have the same value.
- 3.3** The circuit shown in Fig. 3.1 must be set up for the candidates. The switch should be open.

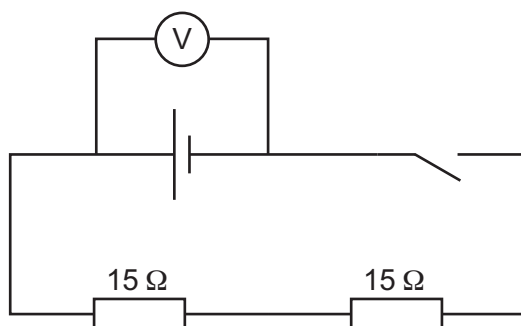


Fig. 3.1

Action at changeover

Reconnect the circuit as shown in Fig. 3.1.

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

Question 4

No materials or apparatus are required for this question.

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Supervisor's report

Syllabus and component number

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Centre number

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Centre name

Time of the practical session

Laboratory name/number

Give details of any difficulties experienced by the centre or by candidates (include the relevant candidate names and candidate numbers).

You must include:

- any difficulties experienced by the centre in the preparation of materials
- any difficulties experienced by candidates, e.g. due to faulty materials or apparatus
- any specific assistance given to candidates.

Declaration

- 1 Each packet that I am returning to Cambridge International contains all of the following items:
 - the scripts of the candidates specified on the bar code label provided
 - the supervisor's results relevant to these candidates
 - the supervisor's reports relevant to these candidates
 - seating plans for each practical session, referring to each candidate by candidate number
 - the attendance register.
- 2 Where the practical exam has taken place in more than one practical session, I have clearly labelled the supervisor's results, supervisor's reports and seating plans with the time and laboratory name/number for each practical session.
- 3 I have included details of difficulties relating to each practical session experienced by the centre or by candidates.
- 4 I have reported any other adverse circumstances affecting candidates, e.g. illness, bereavement or temporary injury, directly to Cambridge International on a *special consideration form*.

Signed (supervisor)

Name (in block capitals)